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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,572	04/11/2006	Kai Eck	DE030355US1	9554

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EXAMINER

BOR, HELENE CATHERINE

ART UNIT	PAPER NUMBER
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3768

MAIL DATE	DELIVERY MODE
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10/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,572

Applicant(s)

ECK ET AL.

Examiner

Helene Bor

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>07/18/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The examiner recognizes the amendments made to the pending claims of 1, 10 & 11.

Under examination are the original and amended claims 1-11.

Response to Arguments

1. Applicant's amendments, filed 07/18/2007 in regards to the 112 second paragraph, overcomes the rejection. The 112 second paragraph rejection of claim 2 is withdrawn.

2. Applicant's corrections filed 07/18/2007 in regards to the drawings are accepted and all objections with regards to the drawings are withdrawn.

3. Applicant's arguments filed 07/18/2007 have been fully considered but they are not persuasive. Applicant presents the argument that Mollus'606 does not teach the claimed invention because the invention of Mollus'606 requires the physician to mentally merge the information from the two images (Page 9 Last paragraph). However, Mollus'606 also teaches the vascular system superimposed [superposed] on the current image...in a single image (Page 2, Para 0014). Thus, the 102(b) rejection of claims 1 & 3-10 and the 103(a) rejection of claim 2 are maintained.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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2. Claim 1 & 3-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Mollus'060 (US Patent Application No. 2003/0123606).

Claim 1: Mollus'606 teaches a device for providing an angiographic image of a body structure (Page 1, Para 0001-0002) matching a given heartbeat phase and a respiratory phase (Page 3, Para 0032). Mollus'606 teaches a device with a database [memory for storing] with angiograms [X-ray image of body volume] from different heartbeat phases and respiratory phases (Page 1, Para 0012 & Page 2 Para 0020), and a data processing apparatus linked thereto (Page 2, Para 0019). Mollus'606 teaches a device for calculation of a function, which describes a change in the body structure dependent upon the respiratory phase (Page 1, Para 0012 & Page 2 Para 0020), which calculation takes place based on from the angiograms [X-ray image of body volume] in the database [memory for storing] (Page 3, Para 0028). Mollus'606 teaches a device for the generation of the angiographic image (Page 1, Para 0001-0002) to be produced from at least one angiogram of the database (Page 3, Para 0030) whose heartbeat phase matches the given heartbeat phase with the aid of the calculated function (Page 3, Para 0030-0033). Mollus'606 teaches wherein a representation of a current image of the body structure is superimposed on the provided angiographic image (Page 2, Para 0014).

Claim 3/1: Mollus'606 teaches a device characterized by a function (FIGURE, Block 8) that describes a change in the position of the body structure [such as the heartbeat and the respiration] (Page 3, Para 0033).

Claim 4/1: Mollus'606 teaches a device characterized by a function (FIGURE, Block 8) that describes a change in the position of the body structure [such as the heartbeat and the respiration] (Page 3, Para 0033) by a correlation (Page 3, Para 0031) of the mutual information in relation to a reference angiogram [current fluoroscopic image sequence] (FIGURE, Element 9).

Claim 5/1: Mollus'606 teaches using digital subtraction angiography (DSA) to attenuate [discard] non-interesting structures [static image objects] and to enhance structures of interest (Page 3, Para 0034).

Claim 6/1: Mollus'606 teaches a device wherein a display device for superimposed representation of a current image of the body structure and the provided angiographic image (Page 2, Para 0013-0014).

Claim 7/1: Mollus'606 teaches a device that includes an image-forming apparatus, such as an X-ray apparatus and/or an MRI device (Page 2, Para 0015 & 0017).

Claim 8/1: Mollus'606 teaches a device that includes an electrocardiographic device for determining an electrocardiogram (Page 3, Para 0032).

Claim 9/1: Mollus'606 teaches a device that includes a respiratory phase sensor (Page 3, Para 0032).

Claim 10: Mollus'606 teaches a method for providing an angiographic image of a body structure (Page 1, Para 0001-0002) matching a given heartbeat phase and a respiratory phase (Page 3, Para 0032). Mollus'606 teaches a method with a database [memory for storing] with angiograms [X-ray image of body volume] from different

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heartbeat phases and respiratory phases (Page 1, Para 0012 & Page 2 Para 0020), and a data processing apparatus linked thereto (Page 2, Para 0019). Mollus'606 teaches a method for calculation of a function, which describes a change in the body structure dependent upon the respiratory phase (Page 1, Para 0012 & Page 2 Para 0020), which calculation takes place based on from the angiograms [X-ray image of body volume] in the database [memory for storing] (Page 3, Para 0028). Mollus'606 teaches a method for the generation of the angiographic image (Page 1, Para 0001-0002) to be produced from at least one angiogram of the database (Page 3, Para 0030) whose heartbeat phase matches the given heartbeat phase with the aid of the calculated function (Page 3, Para 0030-0033). Mollus'606 teaches wherein a representation of a current image of the body structure is superimposed on the provided angiographic image (Page 2, Para 0014).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claim 2 & 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mollus'606 et al. (US Patent Application No. 2003/0123606 A1) and further in view of Langer'716 et al. (US Patent No. 6,496,716 B1).

Claim 2/1: Mollus'606 teaches the use of angiograms (Page 1, Para 0002). Mollus'606 fails to teach how many angiograms there are. However, Langer'716 teaches that angiograms comprise a set of 60 to 125 images (Col. 1, Line 31-34). It would have been obvious to combine the teaching of Mollus'606 and Langer'716 in order to provide a detailed view of different aspects of the cardiac anatomy (Col. 1, Line 31-34).

Claim 11/2: Mollus'606 teaches the use of angiograms (Page 1, Para 0002). Mollus'606 fails to teach how many angiograms there are. However, Langer'716 teaches that angiograms comprise a set of 15 to 30 images (Col. 1, Line 22-25). It would have been obvious to combine the teaching of Mollus'606 and Langer'716 in order to provide a detailed view of different aspects of the cardiac anatomy (Col. 1, Line 31-34).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Bor whose telephone number is 571-272-2947. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

hcb


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